

REMARKS

In the Office Action of November 12, 2002, Claims 1 - 10 were rejected. No claim was allowed. The application remains pending further to a Notice of Appeal and Petition for Extension of Time filed on April 12, 2003 and a Request for Continued Examination and Petition for Extension of Time filed herewith.

In response to the rejection of November 12, 2002, Claims 2 and 7 are canceled, Claims 1, 3, 6 and 8 are amended and new Claims 11 and 12 are added to the application. Reexamination and reconsideration pursuant to the Request for Continued Examination (RCE) filed herewith is respectfully requested in view of the foregoing amendments and the following remarks.

Support for Claim Amendments and New Claims

Claims 1 and 6 are amended to incorporate the limitations of canceled Claims 2 and 7, respectively.

New Claims 11 and 12 are supported on page 11, lines 17 - 24 of the specification.

Rejection of Claims 1 - 5 under 35 U.S.C. §102(b) over Baldo

Claims 1 - 5 were rejected under 35 U.S.C. §102(b) as anticipated by Baldo (U.S. Patent No. 6,097,147). The Examiner alleges that Baldo et al discloses an electro-luminescent electron-hole photon layer containing 4,4'-N,N'-diacarbazole-biphenyl (CBP) and 2,3,7,8,12,13,17,18-octaethyl-21H,23H-porphine platinum (PtOEP) with phosphorescent and/or fluorescent dyes..

This rejection is respectfully traversed as it may be applied to the claims as

amended herein. In independent Claim 1, there are two kinds of dopants in the light-emitting layer: (1) a material wherein the quantum number of orbital angular momentum and the quantum number of excited state spin are convertible into each other (spin conversion material) and (2) a light-emitting molecule. Independent Claim 1 is amended to require that the spin conversion material be a molecule in which a heavy metal atom is bonded to or coordinated to an organic material. By use of the spin conversion material containing a heavy metal atom, the quantum number of the orbital angular momentum and the quantum number of the excited spin state can be converted into each other effectively. Baldo does not teach or suggest a spin conversion material that is a molecule in which a heavy metal atom is bonded to or coordinated to an organic material.

Accordingly, it is respectfully submitted that the rejection of Claims 1 - 5 over Baldo is thereby overcome.

Rejection of Claims 6 - 10 under 35 U.S.C. §103(a) over Baldo in view of Sakai

Claims 6-10 are rejected under 35 U.S.C. §103(a) as being obvious over Baldo et al in view of Sakai et al (U.S. Patent No. 6,224,966). The Examiner alleges that Baldo discloses an electro-luminescent electron-hole photon layer containing 4,4'-N,N'-diacarbazole-biphenyl (CBP) with 2,3,7,8,12,13,17,18-octaethyl-21H,23H-morphine platinum (PtOEP). The Examiner acknowledges that Baldo does not disclose the light-emitting layer and the organic film formed by simultaneous vapor deposition. The Examiner alleges that Sakai teaches two electrically heated boats prepared in a vacuum vapor deposition chamber where one of the boats is loaded with an organic host substance and the other is loaded with a fluorescent substance

and discloses simultaneous vapor deposition so that the organic light-emitting layer would be doped with the fluorescent material. The Examiner takes the position that it would have been obvious to modify Baldo's teachings in view of Sakai's teachings of simultaneous vapor deposition of an organic light-emitting material with a fluorescent material.

This rejection is traversed as it may be applied to the claims as amended herein. In particular, independent Claim 6 is amended to require that the spin conversion material be a molecule in which a heavy metal atom is bonded to or coordinated to an organic material. As discussed above, Baldo does not disclose or suggest a spin conversion material that is a molecule in which a heavy metal atom is bonded to or coordinated to an organic material. Further, Sakai does not teach or suggest this feature. Therefore, Baldo and Sakai, alone or together, do not teach or suggest the claimed invention.

Accordingly, it is respectfully submitted that Claims 6 - 10, and new claims 11 - 12 would not have been obvious over Baldo and Sakai.

Conclusion

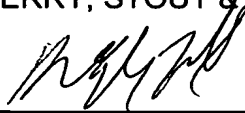
In view of the foregoing amendments and remarks, it is respectfully submitted that Claims 1 - 12 are in condition for allowance. Favorable reconsideration is respectfully requested.

Should the Examiner believe that anything further is necessary to place this application in condition for allowance, the Examiner is requested to contact applicants' undersigned attorney at the telephone number listed below.

Kindly charge any additional fees due, or credit overpayment of fees, to

Deposit Account No. 01-2135 (500.40580X00).

Respectfully submitted,
ANTONELLI, TERRY, STOUT & KRAUS



Ralph T. Webb
Reg. No. 33,047

RTW/RTW
(703)312-6600